

## IL-1R1 Protein, Human, Recombinant (hFc)

## General Information

Synonyms:	IL-1R- $\alpha$ ;IL-1 RI;IL-1R-alpha;IL-1R1;P80;CD121A;IL1RA;interleukin 1 receptor, type I;IL1R;D2S1473
Protein Construction:	A DNA sequence encoding the extracellular domain of human IL1R1 (NP_000868.1) (Met 1-Thr 332) was fused with human IgG1 Fc region at the C-terminus. Predicted N terminal: Leu 18
Species:	Human
Expression Host:	HEK293 Cells
Accession:	P14778
Molecular Weight:	63 kDa (predicted); 80-90 kDa (reducing condition, due to glycosylation)

## QC Testing

Biological Activity:	Measured by its ability to bind human IL1B in a functional ELISA.
Purity:	$\geq 90\%$ as determined by SDS-PAGE. $\geq 90\%$ as determined by SEC-HPLC.
Endotoxin:	$< 1.0$ EU/ $\mu$ g of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a $0.22\ \mu\text{m}$ filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

## Preparation and Storage

Reconstitution:	Reconstituted with sterile deionized water to 0.25 mg/mL. Reconstitution conditions may vary depending on the lot.
Stability & Storage:	It is recommended to store recombinant proteins at $-20^{\circ}\text{C}$ to $-80^{\circ}\text{C}$ for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at $-80^{\circ}\text{C}$ . For reconstituted protein solutions, the solution can be stored at $-20^{\circ}\text{C}$ to $-80^{\circ}\text{C}$ for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots. <small>Actual storage temperature shall be subject to the COA.</small>
Shipping:	In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

## Protein Background

Interleukin 1 receptor, type I (IL-1R1) also known as CD121a (Cluster of Differentiation 121a), is an interleukin receptor. IL-1R1/CD121a is a cytokine receptor that belongs to the interleukin 1 receptor family. This protein is a receptor for interleukin alpha (IL1A), interleukin beta (IL1B), and interleukin 1 receptor, type I (IL1R1/IL1RA). IL-1R1/CD121a is an important mediator involved in many cytokines induced immune and inflammatory responses. This protein has been characterized by pharmacological and molecular techniques in the mouse brain. The

spindle-shaped astrocytes enclose the wound, separating the healthy from damaged neural tissue. The shape change and subsequent repair processes are IL-1 $\beta$  activity-dependent, acting through the IL-1 type 1 receptor (IL-1R1), as co-application of the IL-1 type 1 receptor antagonist protein (IL-1ra) blocks IL-1 $\beta$  induced effects. In the spleen, a slight increase in IL-1R ACP and IL-1R1 was observed during the first hours following LPS stimulation. In conclusion, IL-1R ACP mRNA is expressed in the brain and in other tissues where IL-1R1/CD121a transcripts are found. However, the regulation of its expression is distinct from IL-1R1/CD121a. The high level of expression and the lack of regulation of IL-1R ACP transcripts in the brain under inflammatory conditions suggest that the protein might be constitutively expressed in excess.

### Reference

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Joos L, et al. (2001). "Association of IL-1beta and IL-1 receptor antagonist haplotypes with rate of decline in lung function in smokers.". *Thorax* 56 (11): 863-6.

Vigers GP, et al. (1997). "Crystal structure of the type-I interleukin-1 receptor complexed with interleukin-1beta.". *Nature* 386 (6621): 190-4.

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Tel:781-999-4286 E\_mail:info@targetmol.com Address:34 Washington Street,Wellesley Hills,MA 02481